

REMARKS

Reconsideration of the application is requested in view of the modifications above and the remarks below. Applicants have amended Claim 1 to indicate that the production of the polyether alcohol mixture A) containing polyethers a1) and urethane group-containing polyethers a2) is carried out by the partial reaction of polyethers a1) with at least one organic isocyanate having a functionality of ≥ 2 and up to 50 mole % the polyethers a1) are reacted with isocyanates. Express support for this amendment is found on page 6, lines 22-29 of the specification.

1. Rejection Under 35 USC 103

Rejection of Claims 1-6 and 8-12 Under 35 USC 103

The Office Action's rejection 1-6 and 8-12 under U.S. Pat. No. 4,079,028 (Emmons) should be withdrawn.

It is well settled that to establish a *prima facie* case of obviousness, the USPTO must satisfy all of the following requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification must have had a reasonable expectation of success, as determined from the vantage point of one of ordinary skill in the art at the time the invention was made. *Amgen v. Chugai Pharmaceutical Co.* 18 USPQ 2d 1016, 1023 (Fed Cir, 1991), *cert. denied* 502 U.S. 856 (1991). Third, the prior art reference or combination of references must teach or suggest all of the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496, (CCPA 1970).

Applicants' invention relates to a water-soluble or water-dispersible polyurethane comprising the reaction product of:

A) at least one polyether polyol a1) having a average functionality of ≥ 3 and at least one urethane group-containing polyether polyol a2) having an average functionality of ≥ 4 ,

B) at least one C₆-C₂₂ monoalcohol,

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- C) at least one (cyclo)aliphatic and/or aromatic diisocyanate
- D) optionally at least one C4-C18 monoisocyanate, and
- E) optionally at least one polyisocyanate having an average functionality of > 2 .

The component C) comprises isophorone diisocyanate and the starting NCO/OH equivalent ratio is between 0.5:1 to 1.2:1 and the polyurethane has a softening point of from 10°C to 80°C. The production of the polyether alcohol mixture A) containing polyethers a1) and urethane group-containing polyethers a2) is carried out by the partial reaction of polyethers a1) with at least one organic isocyanate having a functionality of ≥ 2 and up to 50 mole % the polyethers a1) are reacted with isocyanates.

Emmons teaches latex and other aqueous systems are thickened by incorporation of a low molecular weight polyurethane characterized by at least three hydrophobic groups interconnected by hydrophilic polyether groups. The thickeners are nonionic, hydrolytically stable and are resistant to biodegradation. More particularly, Emmons teaches that the polymers are prepared in non-aqueous media and are the reaction products of at least reactants (a) and (c) of the following reactants: (a) at least one water soluble polyether polyol, (b) at least one water insoluble organic polyisocyanate, (c) at least one monofunctional hydrophobic organic compound selected from monofunctional active hydrogen compounds and organic monoisocyanates, and (d) at least one polyhydric alcohol or polyhydric alcohol ether. The products formed include the following:

1. Reaction products of a reactant (a) containing at least three hydroxyl groups, and the foregoing organic monoisocyanate;
2. Reaction products of reactant (a), reactant (b) containing two isocyanate groups, and the foregoing active hydrogen containing compounds. Such compounds wherein the ratio of equivalents of (a) to (b) is 0.5:1 to 1:1 are believed to be new per se; all are believed to be useful in certain systems;
3. Reaction products of reactant (a), reactant (b) containing at least three

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isocyanate groups, and the active hydrogen containing compounds;

4. Reaction products of reactant (a), reactant (b) and the organic monoisocyanate; and

5. Reaction products of reactants (a), (b), (d) and the organic monoisocyanate.

The reactants are normally employed in substantially stoichiometric proportions, that is, the ratio of total equivalents of active hydrogen containing reactants (whether mono or polyfunctional) to isocyanate reactants is at least 1:1. A slight stoichiometric excess (e.g., about 5-10%) of monofunctional active hydrogen containing compound may be used to eliminate any unreacted isocyanate functionality, thus avoiding toxicity from this source. Greater excesses, particularly of capping hydroxyl compound, may be used to increase thickening efficiency. A slight excess of a monoisocyanate is sometimes desirable in cases where such isocyanate is a capping hydrophobe, to ensure capping of all available active hydrogen functionality.

One of ordinary skill in the art following the teachings of Emmons would not have been motivated to modify Emmons and make or practice Applicants' invention. Emmons' latex and other aqueous systems are thickened by incorporation of a low molecular weight polyurethane characterized by at least three hydrophobic groups interconnected by hydrophilic polyether groups (and its other teachings) are different from Applicants' water-soluble or water-dispersible polyurethane, in which the production of the polyether alcohol mixture A) containing polyethers a1) and urethane group-containing polyethers a2) is carried out by the partial reaction of polyethers a1) with at least one organic isocyanate having a functionality of ≥ 2 and up to 50 mole % the polyethers a1) are reacted with isocyanates. Emmons does not have teachings that would have motivated one of ordinary skill in the art to modify Emmons and make or practice Applicants' invention. Reconsideration is requested.

Double Patenting

The Office Action rejected Claims 1-6 and 8-12 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-Mo6799

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16 of copending Application No. 10/091960 and claims 1-12 of copending application 10/092077. Applicants will file a terminal disclaimer when the rejection under 35 USC 103 is withdrawn.

In view of the above amendments, Applicants earnestly request the allowance of all Claims.

Respectfully submitted,

By



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